REMARKS

Claims 1-30 are pending. By this Amendment, claims 1, 4, 13, 14, 15, and 20 are amended and claims 21-30 are added. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The Office Action rejected claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over Sharma et al. (hereinafter "Sharma"), U.S. Patent No. 5,764,627, in view of Kudo et al. (hereinafter "Kudo"), U.S. Patent No. 5,148,429. The rejection is respectfully traversed.

The Office Action contends that Sharma discloses all the claimed features of the claimed invention except for explicitly disclosing "the main controller is configured to add or separate a header data signal." The Office Action then applies the teachings of Kudo, which allegedly discloses "a main controller configured to add or separate a header data signal." The Office Action then concludes that "[o]ne skilled in the art would have recognized [that] the main controller is configured to add or separate a header data signal to use the teachings of Kudo et al. in the system of Sharma et al." The Office Action further contends that "[i]t would have been obvious to one of ordinary skill in the art at the time [of the] invention, to use the main controller configured to add or separate a header data signal as taught by Kudo et al. in Sharma et al.'s system with the motivation being to provide an arrangement of a voice terminal interface which converts a voice signal into one packet or [a] plurality of packets."

Sharma discloses a method and apparatus for a hands-free speaker phone. The system is disclosed in Figure 3 of Sharma. In the handset system of Figure 3, three alternate telephone

interfaces are provided, a telephone handset 301, a telephone headset 302, and a hands-free microphone 303 and speaker 304. The three alternative interfaces connect to a digital telephone coder-decoder (CODEC) circuit 305. The digital telephone CODEC circuit 305 interfaces with a voice control digital signal processor (DSP) circuit 306, which includes a voice controller DSP and a CODEC. As stated in Sharma, the circuit 305 does digital to analog (D/A) conversion, analog to digital (A/D) conversion, coding/decoding, gain control and is the interface between the voice control DSP circuit 306 and the telephone interface. Further, Sharma states that the CODEC of the voice control circuit 306 transfers digitized voice information in a compressed format to multiplexer (MUX) circuit 310 and then to analog telephone line interface 309.

Sharma further discloses that the multiplexer (MUX) circuit 310 selects between the voice control DSP circuit 306 and the data pump DSP circuit 311 for transmission of information on the telephone line through telephone line interface circuit 309. The system further includes a data pump circuit 311, which also includes a digital signal processor (DSP) and a CODEC for communicating over the telephone line interface 309 through MUX circuit 310. The data pump DSP and CODEC of circuit 311 perform functions such as modulation, demodulation and echo cancellation to communicate over the telephone line interface 309 using a plurality of telecommunication standards including fax and modem protocols.

The system of Figure 3 further includes a main controller circuit 313, which controls the DSP data pump circuit 311 and the voice control DSP circuit 306 through serial input/output and clock timer control (SIO/CTC) circuits 312 and dual port RAM circuit 308, respectively. In this way, digital voice data can be read and written simultaneously to the memory portions

of circuit 308 for high speed communication between the user (through interfaces 301, 302 or 303, 304) and a personal computer connected to serial interface circuit 315 and the remote telephone connection connected through the telephone line attached through line interface circuit 309.

Additionally, the main controller is connected to RAM circuit 306 and a programmable and electrically erasable read only memory (PEROM) circuit 317. The PEROM circuit 317 includes nonvolatile memory in which the executable control programs for the voice control DSP circuit 306 and the main controller circuit 313 operate. An RS232 serial interface circuit 315 communicates to the serial port of the personal computer which is running the software components of the system. The RS232 serial interface circuit 315 is connected to a serial input/output circuit 314 with main controller circuit 313.

In contrast to the system disclosed by Sharma, the present application is directed to an apparatus for multiplexing a line and a data transmission method. In particular, amended independent claim 1 recites an apparatus for multiplexing a line comprising, *inter alia*, a plurality of conversion processors, wherein each conversion processor is configured to modulate a communication signal provided by a user application to create an interim modulated signal, analyze the communication signal to determine a type of communication signal, and demodulate the interim modulated signal to create a second original signal based on a type of communication signal. Sharma does not disclose or suggest such features, or the combination thereof.

The Office Action appears to equate the digital telephone CODEC 305 and the voice control digital signal processor (DSP) circuit 306 with the conversion processor of the claimed

invention. However, if the Sharma system is interpreted in this fashion, there is only one conversion processor in the system. In contrast, claim 1 recites a plurality of conversion processors. Kudo fails to overcome this deficiency of Sharma as it is merely cited for the teaching of a main controller configured to add or separate a header data signal. For at least these reasons, claim 1 is allowable over Sharma and Kudo.

Further, elements 305 and 306 of Sharma do not modulate a communication signal, analyze the communication signal to determine a type of communication signal, and then demodulate the interim modulated signal, based on the type of communication signal, to create a secondary original signal. In the Sharma system, the type of signal is always known. Thus, there is no need to determine the type of signal, or to demodulate based on the type of signal. It is respectfully submitted that claim 1 is also allowable for these additional reasons.

Amended independent claim 13 recites a data transmission method comprising, *inter alia*, modulating a signal provided from a user application to create an interim modulated signal, determining a type of communication signal that was modulated to create the interim modulated signal, and demodulating the interim modulated signal with the demodulator having a path set to correspond with the determined type of communication signal. As explained above, Sharma fails to disclose or suggest such features, or the combination thereof. That is, the digital telephone CODEC 305 and the voice control digital signal processor (DSP) circuit 306 of Sharma do not perform such functions. Kudo fails to overcome the deficiencies of Sharma as it is merely cited, as stated above, for the teaching of a main controller configured to add or

separate a header data signal. For at least these reasons, it is respectfully submitted that claim 13 is allowable.

Amended independent claim 20 recites a data transmission method comprising, *inter alia,* modulating and then demodulating signals based on a type of the communication signal provided from the main controller using one of a plurality of conversion processors to transmit the signals respectively to a corresponding user application, wherein each of the plurality of conversion processors is coupled to the main controller and a corresponding user application, and wherein each of the plurality of conversion processors comprises a first demodulator/modulator configured to modulate a first type of communication signal provided from the main controller, a second demodulator/modulator configured to modulate the second type of communication signal provided from the main controller, and a third demodulator/modulator configured to modulate the third type of communication signal provided from the main controller. Sharma does not disclose or suggest such features. Again, the digital telephone CODEC 305 and the voice control digital signal processor (DSP) circuit 306 of Sharma do not perform such functions, nor do they include the claimed first, second, and third demodulator/modulators. Kudo fails to overcome the deficiencies of Sharma as it is merely cited, as stated above, for the teaching of a main controller configured to add or separate a header data signal. It is respectfully submitted that claim 20 is allowable for at least these reasons.

Accordingly, the rejections of independent claims 1, 13, and 20 as being unpatentable over the combination of Sharma and Kudo should be withdrawn. Dependent claims 2-12, 14-

19, as well as added claims 21-30, are allowable at least for the reasons discussed above with respect to independent claims 1, 13, and 20, from which they respectively depend, as well as for their added features.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Carol L. Druzbick**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP

Daniel Y.J. Kim
Registration No. 36,186
Carol L. Druzbick
Registration No. 40,287

P.O. Box 221200
Chantilly, VA 20153-1200
703 502-9440 DYK:CLD/kam
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